Stage pratique de 3 jour(s)
Réf : RID

## Participants

Network installers and maintainers.

## Pré-requis

Basic knowledge of networking technologies and TCP/IP.

## Dates des sessions

**Brussels**
16 nov. 2015
**Geneve**
16 nov. 2015
**Luxembourg**
16 nov. 2015

# Network Configuration and Troubleshooting

Best

OBJECTIVES

*This very practical course will give you the skills to diagnose faults that may occur within a network infrastructure. Several approaches and technical solutions will be proposed to identify the causes of the problems and solve them effectively.*


1) Basic networking concepts
2) Local Area Networks
3) Wireless Networks
4) Routers
5) Network Infrastructure Services
6) Simple Network Management Protocol (SNMP)


## 1) Basic networking concepts

- OSI model and TCP/IP architecture.
- Different types of networks.
- Network equipment : routers, switches, client and server computers.
- Hardware and software aspects.
- Configuration, test, and troubleshooting principles.

**Workshop**
*Basic IP configuration. Network test.*

## 2) Local Area Networks

- Ethernet and IEEE 802.3. Switched Ethernet.
- Switching principles, switch operation.
- Spanning Tree Protocol.
- Virtual Local Area Networks (VLAN).
- Common problems.
- Configuring and troubleshooting ethernet switches.

**Workshop**
*Switch installation and configuration using VLAN. Simulation troubleshooting.*

## 3) Wireless Networks

- Methods and principles of operation.
- IEEE 802.11 Wireless Networking Standards .
- Wi-Fi alliance.
- Security models: WEP, WPA, WPA-2.

**Workshop**
*Setting up and using a Wireless Access Point.*

## 4) Routers

- How IP networks operate.
- Using IP addresses and netmasks.
- Routing techniques and protocols.
- Address Resolution Protocol (ARP).
- Saving and restoring router configuration .
- Troubleshooting router configuration.
- Security. SSH implementation.

**Workshop**
*Basic router configuration. Using ping and traceroute. Using static and dynamic routing. Analyzing routing tables. Saving and restoring router configuration.*

## 5) Network Infrastructure Services

- Dynamic Host Configuration Protocol (DHCP).
- DHCP server and DHCP relay. Using DHCP.
- Domain Name Service (DNS). Direct and reverse queries.
- Static versus dynamic DNS.
- Configuring DNS server and DNS client.
- Common problems.
- DNS testing and troubleshooting.

**Workshop**
*Setting up, testing and troubleshooting DHCP and DNS services.*

## 6) Simple Network Management Protocol (SNMP)

- SNMP principles : agent and supervisor.
- SNMP versions.
- Management Information Bases.
- Traps and notifications.
- Using SNMP on a switch, a router, a server.
- Configuring SNMP agents.

**Workshop**
*Installing and configuring SNMP on a Windows server. Configuring SNMP agents on a switch and a router. Using a MIB Browser.*